

# Influence of Child Rearing by Grandparent on the Development of Children Aged Six to Twelve Years

Sutham Nanthamongkolchai PhD\*,  
Chokchai Munsawaengsub MD\*, Chantira Nanthamongkolchai MSc\*\*

\* Department of Family Health, Faculty of Public Health, Mahidol University, Bangkok, Thailand

\*\* Health Center Region I, Bangkok, Thailand

---

**Objective:** To investigate the influence of child rearing by grandparent on the development of children aged six to twelve years.

**Material and Method:** A cross-sectional study was conducted in 320 children that were cared for by a parent and grandparent selected by cluster sampling. The data were collected between March 10 and April 8, 2006 by questionnaire about child and family factors. The TONI-III test was used to test the child development. Data were analyzed by frequency distribution, logistic regression, and multiple logistic regression.

**Results:** Child caregiver had a significant influence on child development ( $p$ -value < 0.05). Children reared by a grandparent had 2.0 times higher chance of having delayed development compared with those who were reared by the parent. In addition, significant family factors that had impact on the child development were child rearing and family income.

**Conclusion:** Child rearing by a grandparent had 2.0 times higher chance of having delayed development than those reared by the parent. Therefore, family and health personnel should plan to ensure the development and learning process of children that are cared by the grandparent.

**Keywords:** Child reared by grandparent, Children aged six to twelve years, Development

*J Med Assoc Thai* 2009; 92 (3): 430-4

**Full text. e-Journal:** <http://www.mat.or.th/journal>

---

Human growth and development are a continuous modification process starting from fertilization. There are many changes in physical, mental, emotional, social, and intelligence that are under genetic regulation and external environment, particularly for child reared by the family<sup>(1,2)</sup>. To promote aged appropriate growth and development of the children in the family, father and mother are the most important components. The children should grow in warmth, and love, and be well reared by the parents and their relatives. They also should have the chance to get age-appropriate health and development leading to a good quality of life. Chen X et al studied about the parental warmth, control, indulgence, and their relations to adjustment in Chinese children. They found that the family that had prompt child care, love, and warmth

*Correspondence to:* Nanthamongkolchai S, Department of Family Health, Faculty of Public Health, Mahidol University, Bangkok 10400, Thailand.

help children learn and adapt themselves to new social environments<sup>(3)</sup>. This is similar to the study of Nanthamongkolchai S et al who found that appropriate child rearing and mother education had a significant influence on child development<sup>(4,5)</sup>.

With the Thai society modernizing, the family adapted and migrated some of their members to work in the industrialized or urban areas while they left their children behind, with the grandparents, in the rural area<sup>(6,7)</sup>. The grandparents mainly took care and promoted the physical development of the children. However, in the learning process, particularly intellectual aspect, the grandparents cannot support the children well as shown in the study of Nanthamongkolchai S on the child care and child rearing in a Thai family. It stated that the pre-school and school-aged children who had the parents as the major caregivers had received better general health care and promotion of emotional, social, and intellectual development than

those who were reared by the non-parents, mostly grandparents<sup>(8)</sup>. According to the study of Jumpaklay A on the effect of migration of the parent to the quality of life in the children, it found that the children without a parent living in the family had a higher history of illness in the past one month than those who lived with the parent<sup>(9)</sup>. This is congruent with the study of Nanthamongkolchai S et al who stated that the children living in the family with migration of the member, mostly with the father, had 1.4 times higher chance of having an IQ below normal than those who lived in the family without member migration<sup>(10)</sup>.

Studies in countries such as in the Philippines and Kenya have shown the opposite. It showed that the migration of household leader had no negative impact on the growth and development of the children who were taken care by another member of the family, particularly when the father migrated and the mother was the main caregiver<sup>(11,12)</sup>. According to the literature review, the author still could not clearly conclude that when the parent cannot be responsible for the child and imposed such duties to the grandparent, it had an influence on the development of the children. Thus, the present study aimed at analyzing the influence of the child rearing by grandparent on the development of children aged between six to twelve years old, on the hypothesis that child rearing by a grandparent is the major factor affecting the child development even if child factors and family factors such as family income and child rearing practice are controlled. The result could be used as a parental and health personnel guideline to take care of the children for enhancing appropriate development.

## **Material and Method**

A cross-sectional study was conducted in Phrae province. The data were collected by two researchers. The inter-rater reliability test during the pilot test showed 95-100% agreement in each item. The interviews of the child caregivers and the assessment of child development were done between March 10, 2006 and April 8, 2006. Three hundred twenty children, aged between six to twelve years old, were selected by cluster sampling. Child caregivers were parent and grandparent. The child caregiver means the person who takes care of them, at least six months before the survey. For the group of grandparents, the majority of parents (76.3%) migrated to work in other places, 15.4% were family with a parent who died or was divorced, and 8.3% lived together but the parents have no role in child caring. The research instrument was divided into

two parts. Part I included the questions developed by the researchers to elicit information regarding to the children data ( sex, number of siblings), the family data (child caregiver's education), the family type (nuclear, extended), the family income (sufficient and insufficient), and family crisis (measure by the presence of at least one of seven events that have occurred in the past six months such as severe illness of a family member, unemployed, death, drug addict, divorced, jailed, or escaped from school). Part I also focused on the child rearing scale by using the concept of basic needs and services for children (12 items, classify child rearing as appropriate and inappropriate)<sup>(13)</sup>. The child rearing in the present study concentrated only on the promotion of intellectual development of the children. In part II, the study has assessed the child development; the test of nonverbal intelligence (TONI-3) was used to assess intellectual development. The subjects were classified as normal development ( $IQ \geq 90$ ) or delay development ( $IQ < 90$ )<sup>(14)</sup>.

Three experts who were two psychologists and a pediatrician assessed the content validity of the instrument. Reliability was assessed in 30 parents and grandparents of children aged six to twelve years who shared similar characteristics with the study subject. Cronbach's alpha coefficient for child rearing was 0.78.

Data were analyzed by frequency distribution and percentage to describe the demographic characteristic of the subjects. Logistic regression and multiple logistic regression were used to study the influence of the child rearing by a grandparent on the child development with the significant level set at  $p$ -value  $< 0.05$ .

## **Results**

### ***Characteristic of children and family***

The proportion of girls and boys were 55.9 and 44.1%, and most (63.7%) had two or more siblings. The main child caregivers were equal (50%) among parent and grandparent, most of them were a nuclear family, and more than half (57.8%) had insufficient income for family expense. Almost all child caregivers (94.1%) had finished elementary school or lower education, 63.8% faced with family crisis, and 54.4% had appropriate child rearing (Table 1).

### ***Development of children aged six to twelve years***

The finding revealed that 63.4% of children aged six to twelve years old had a normal development, while 36.6% had delayed development (Table 2).

**Table 1.** Number and percentages of characteristics of children and family (n = 320)

Characteristics	n	%
Character of children		
Sex		
Male	141	44.1
Female	179	55.9
Number of siblings		
One	116	36.3
Two or more	204	63.7
Character of family		
Main caregiver		
Father, mother	160	50.0
Grandparent	160	50.0
Type of family		
Extended family	93	29.1
Nuclear family	227	70.9
Sufficiency of income		
Sufficient	135	42.2
Insufficient	185	57.8
Caregiver's education		
Elementary or lower	301	94.1
Secondary school or higher	19	5.9
Family crisis		
No crisis	116	36.3
Had crisis	204	63.7
Child rearing		
Appropriate	174	54.4
Inappropriate	146	45.6

**Table 2.** Number and percentage of child development (n = 320)

Developmental status	n	%
Normal development	203	63.4
Delayed development	117	36.6

### ***Influence of child rearing by grandparent on the development of children aged six to twelve years***

For the bivariate analysis between child caregiver factors and child development with logistic regression found that, the child caregiver was statistically significant related with child development ( $p < 0.05$ ). The child reared by a grandparent had 2.9 times higher chance of delayed development than those who were reared by a parent. Multivariate analysis between child caregiver factors, child factors, and family factors by multiple logistic regression found that the child caregiver had significant influence on child develop-

ment ( $p < 0.05$ ). The children reared by a grandparent had 2.0 times higher chance of delayed development than those who were reared by their parent. Furthermore, the family income and child rearing had an influence on child development ( $p < 0.05$ ). The children in insufficient income family had 2.1 times higher chance of delayed development than those with sufficient income. The child with inappropriate child rearing had 8.8 times higher chance of delayed development than those with appropriate child rearing (Table 3).

### **Discussion**

The children aged six to twelve years old had delayed development 36.6% and by multivariate analysis which control the factors of grandparent caregiver, child characteristic, family, and child development pointed out that the child reared by their grandparents had a 2 times higher chance of delayed development than those who were reared by their parent. It showed that the parent had a significant role in child care and promotion of intellectual development. The children who grew up with a grandparent received the physical growth promotion and good nutrition but may lack learning skill promotion and activity that lead to intellectual development, which is congruent with the study of Nanthamongkolchai S. They found that the school age children who were reared by their parent as a main caregiver had a higher chance to receive the care with developmental promotion of emotional, social, and intellectual than the child reared by other family members, who were mostly grandparents<sup>(8)</sup>. The study of parental migration and health status of children found that children living in families where fathers or mothers migrated to work in another major city had a higher chance of delayed development than those who lived in families with non-migrate parent<sup>(15)</sup>.

The family income and child rearing factors had an influence on the intellectual development of the children. It seems that the family with insufficient income for the household expense leads to lack of opportunity to provide the learning promotion accessories for the children. This may be because the main caregiver spent most of their time working. The child rearing was the most important factor of child development because the parent or the main caregiver knew how to manage their knowledge and choose the appropriate child rearing practice to promote intellectual development, give the chance for the children to show their creative thinking, and act as a role model that made the potential intellectual development. The study of a Ruengdaraganond N, Mosuwan L et al, and

**Table 3.** Logistic regression and multiple logistic regression analysis between child caregiver factors, child characteristics, family types, and child development

	Bivariate analysis Logistic regression		Multivariate analysis Multiple logistic regression	
	B	OR (95% CI)	B	AdOR (95% CI)
Child caregiver				
Grandparent <sup>(1)</sup>	1.082*	2.94 (1.83-4.75)	0.737*	2.01 (1.10-3.67)
Child factors				
Male <sup>(2)</sup>			-0.242	0.78 (0.45-1.36)
Number of siblings: more than one <sup>(3)</sup>			-0.040	0.96 (0.57-1.69)
Family factors				
Nuclear family <sup>(4)</sup>			-0.257	0.78 (0.43-1.40)
Family income: insufficient <sup>(5)</sup>			0.739*	2.07 (1.15-3.72)
Family crisis: had family crisis <sup>(6)</sup>			0.232	1.26 (0.702-2.27)
Child rearing: inappropriate <sup>(7)</sup>			2.17*	8.78 (4.96-15.55)
-2 log likelihood	399.424		322.549	
p-value	<0.001		<0.001	
n	320		320	

Development of children: Normal development = 0, Delayed development = 1

\* Statistical significance at p-value < 0.05

Ad = Adjusted, OR = Odds Ratio, B = Coefficient

Number in bracket after the adjusted OR is 95% confidence interval (95% CI)

Number in bracket after each factor is the referencing number: (1) Parent, (2) Female, (3) One child, (4) Extended family, (5) Sufficient income, (6) Not family crisis, (7) Appropriate child rearing

Nanthamongkolchai S et al found that the family income and the child rearing had influence on the development of school-aged children<sup>(4,5,16,17)</sup>, which was congruent with the present study. Therefore, the family should promote the development and learning process of the children who were reared by the grandparent and the health personnel should organize knowledge training on child development and intellectual promotion for the grandparent.

However, the study of Davidhizar R et al<sup>(18)</sup> in The United States of America about the role of grandparent who took care of the grandchildren had a different result and found that the role of grandparent had a positive effect upon the good relation among the grandparents and grandchildren. In addition, the study of Kemp CL<sup>(19)</sup> found the grandparent-adult grandchild relationships had friendships relation, which lead to sharing of experiences and thinking that strengthened the confidence and trust among the family members.

#### Acknowledgements

The authors wish to thank all the participants in the study and we would like to thank Mrs. Kanjana Akepatcha for her kind support during data collection.

#### Reference

1. Bee H. The growing child. New York: Harper Collins College Publishers; 1995: 105-83.
2. Nelson WE, Behrman RE, Kliegman RE, Arvin AM, editors. Text book of pediatrics. 15<sup>th</sup> ed. Philadelphia: W.B. Saunders; 1996: 56-72.
3. Chen X, Lice M, Li D. Parental warmth, control, and indulgence and their relations to adjustment in Chinese children: a longitudinal study. *J Fam Psychol* 2000; 14: 401-19.
4. Nanthamongkolchai S, Isaranurug S, Kaewsiri D. Factors affecting intelligence development of school children in four areas of Thailand. *Thai J Pediatr* 2003; 42: 9-18.
5. Nanthamongkolchai S, Isaranurug S, Klinman S. Factors affecting cognitive development of students in matthyom sukka, Muang district, Nakhon Sawan Province. *J Public Health* 2003; 33: 131-9.
6. Chamratrithirong A, Achavanikul K, Richter K, Guest P, Thongthai V, Boonchalaksi V, et al National migration survey of Thailand. Bangkok: Institute for Population and social Research, Mahidol University, Thailand; 1995: 65-78.
7. Soonthorndhada K, Kanungsukkasem U,

- Punpueng S, Tangchonlatip K. Child-care situations in Thailand: a synthesis report. Bangkok: Institute for Population and Social Research Mahidol University, Thailand; 1998: 46-63.
8. Nanthamongkolchai S, editor. Child rearing practices of Thai families: a quantitative and qualitative study. Bangkok: The Thailand Research Fund; 2004: 153-162.
  9. Jampaklay A. Migration of the parent and the quality of life of the children. Population and Development Newsletter 2005; 25: 1-2.
  10. Nanthamongkolchai S, Mosuwan L, Ruengdaraganond N, Isaranurug S. Family migration and intelligence quotient of school children and adolescent in Thailand. J Demography 2006; 22: 33-43.
  11. Graziano B, Conoco CG. The impact of labour migration on the children left behind: a study of elementary school children in the Philippines. SQJOURN 1998; 13: 220-41.
  12. Onyango A, Tucker K, Eisemon T. Household headship and child nutrition: a case study in western Kenya. J Soc Sci Med 1994; 39: 1633-9.
  13. National Bureau of the Children Promotion and Coordination. Basic minimum needs and services for children. Bangkok: National Bureau of the Children Promotion and Coordination; 1990: 30-7.
  14. Brown L, Sherberou R, Johnsen SK. Examiner's manual TONI-3 test of nonverbal intelligence. 3<sup>rd</sup> ed. New York: Proed; 1997: 1-142.
  15. Nanthamongkolchai S, Isaranurug S, Munsawaengsub C. Parental migration and health status of children aged 1-12. J Public Health Dev 2006; 4: 57-64.
  16. Ruendaraganond N. Cognitive development of Thai children. Bangkok: The Thailand Research Fund; 2004: 70-4.
  17. Mosuwan L, Chompikul J, Isaranurug S, Ruendaraganond N, Sanga P, Nanthamongkolchai S, et al. Holistic development of Thai children. Bangkok: The Thailand Research Fund; 2004: 25-39.
  18. Davidhizar R, Bechtel GA, Woodring BC. The changing role of grandparenthood. J Gerontol Nurs 2000; 26: 24-9.
  19. Kemp CL. Dimensions of grandparent-adult grandchild relationships: From family ties to Intergenerational friendships. Can J Aging 2005; 24: 161-77.

## อิทธิพลของผู้เลี้ยงดูที่เป็นปู่ย่า ตายาย ต่อพัฒนาการเด็กอายุ 6-12 ปี

สุธรรม นันทมงคลชัย, โชคชัย หมั่นแสงทรัพย์, จันทิรา นันทมงคลชัย

**วัตถุประสงค์:** เพื่อศึกษาอิทธิพลของผู้เลี้ยงดูที่เป็นปู่ย่า ตายาย ต่อพัฒนาการเด็กอายุ 6-12 ปี

**วัสดุและวิธีการ:** เป็นการสำรวจภาคตัดขวาง เก็บรวบรวมข้อมูลจากเด็กพร้อมผู้เลี้ยงดูหลักที่เป็นบิดามารดา และปู่ย่า ตายาย ในจังหวัดแพร่ จำนวน 320 คน เลือกกลุ่มตัวอย่างจากการสุ่มแบบแบ่งกลุ่ม เก็บรวบรวมข้อมูลโดยวิธีการสัมภาษณ์และทดสอบพัฒนาการเด็กด้วยแบบทดสอบ TONI-III ในช่วงวันที่ 10 มีนาคม พ.ศ. 2549 ถึง 8 เมษายน พ.ศ. 2549 วิเคราะห์ข้อมูลโดยใช้สถิติ ค่าความถี่ ร้อยละ Logistic regression และ Multiple logistic regression

**ผลการศึกษา:** ผู้เลี้ยงดูหลักมีอิทธิพลต่อพัฒนาการเด็กอย่างมีนัยสำคัญทางสถิติ ( $p$ -value < 0.05) โดยเด็กที่ถูกเลี้ยงดูโดยปู่ย่า ตายาย มีโอกาสที่จะมีพัฒนาการต่ำกว่าปกติ 2.0 เท่า ของเด็กที่เลี้ยงดูโดยบิดามารดา นอกจากนี้ ปัจจัยด้านลักษณะการอบรมเลี้ยงดู และรายได้ของครอบครัว มีอิทธิพลต่อพัฒนาการเด็กอย่างมีนัยสำคัญทางสถิติ ( $p$ -value < 0.05)

**สรุป:** เด็กที่ถูกเลี้ยงดูโดยปู่ย่า ตายาย มีโอกาสที่จะมีพัฒนาการต่ำกว่าปกติ 2.0 เท่า ของเด็กที่เลี้ยงดูโดยบิดามารดา ดังนั้น ครอบครัวและบุคลากรด้านสาธารณสุข ควรกำหนดแนวทางในการส่งเสริมพัฒนาการและการเรียนรู้ของเด็กที่เลี้ยงดูโดยปู่ย่า ตายายที่เหมาะสมต่อไป